The Goshawk Flier

RROC Goshawk Society
Serving the Small HP Community

Spring 2010

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Editor
Phil Birkeland
1041 Berkeley Ave
Tacoma, WA 98466
253.564.9109
philbirkeland@gmail.com

The Goshawk Society

This is the second issue of the Society's newsletter, which is published electronically. The Society is an affiliate of the Rolls-Royce Owners' Club, and was formed to address the interests of enthusiasts and owners of the pre-war R-R Small Horsepower series of cars. These models are the Twenty, 20/25, 25/30, and Wraith, and were built from 1922 to 1939.

Society News

Our new officers, elected in October 2009, are:

Chair	Tim Jayne
Secretary	Lynn Coombs
Treasurer	Gary Phipps
Editor	Phil Birkeland
Technical Director	Wally Donoghue

Spring 2010 Phantom I (Prewar) Tour, Asheville NC, 18-23 April: All prewar cars are invited. Several of our people will be participating.

2010 Annual Meet, Toronto, 19-24 July: Bring your car. If you can't, come anyway. Tim Jayne is hosting a Tech Session. Plan to be there!

"Phil Birkeland's 20/25 GPG23 at Diablo Lake on 2008 Pacific NW Fall Tour".

MERMIE MARRIED!

By Mermie Karger, Exton PA
Member, SGA

On September 12th, 2009, Mermie Karger and Colin Hughes were ferried by Colin's 1931 20/25 Park Ward saloon, GOS8, to and from their wedding in Hemel Hempstead, UK. See Photo. Colin's sense of thrift meant he drove it. GOS8 is a very original car that has been in Colin's family since 1961, and with Colin since 1969. Colin recently received his 50-year membership pin from the RROC, and has been the photographer whose pictures have filled the pages of the RREC Bulletin for nearly all of that time. He also runs a 4-1/4 liter overdrive Bentley, B60MR. Now Mermie will have company (and maybe a second driver) for long distance travel with her "Ghostie-O" (1913 Silver Ghost 2442), and soon again with "Ovid" (1939 Phantom III 3DL122).

Editor's Note: You may wonder why an SGA member rates an announcement in the Flier. Well, she is a fixture in the RROC, and is therefore newsworthy. She participated in last year's Phantom I Spring Tour (along with several of our people), is a tireless advocate of driving our cars, and, witness to the fact she is much stronger than she looks, several years; ago drove her Silver Ghost by herself from PA to the Monterey Annual Meet.

THE FRENCH CONNECTION

By Gil Fuqua, Nashville TN
President RROC, Member Goshawk Society

On the back cover is a photo of my 1935 20/25, GBJ68. It carries a handsome Barker 4-Light body. The car is one of only eleven 20/25s that were shipped new to the US. The car was built for both the US and French markets. Its chassis plate (located on the firewall) therefore had to comply with French regulations, and is in French, as shown below.

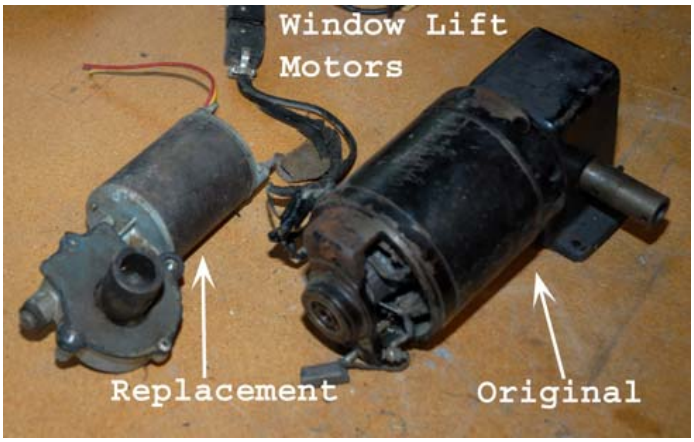
The car has a full export tool kit, one that is much larger than usually found on 20/25s. Instruments are dual-labeled. Petrol shows gallons/liters, and the speedometer has miles/kilometers.

REPLACING A BURNT-OUT DIVIDER WINDOW MOTOR

By David Chrestenson, Oswego, IL
Goshawk Society

While restoring my 1937 25/30 Hooper limousine, GRP72, I discovered that the power lift of the divider window was inoperative. Taking off the wood panel displayed a solidly built electric motor, and a wiring board with terminals and two relays. A three-way switch (off, raise, and lower) operated the arrangement. Closer examination showed that the switch operated the two relays, one for each direction, used to carry the current required for the motor. The motor, manufactured by Klaxon, was built solidly enough to survive a drop from a space station, but had burnt out.

As the quote for rewinding neared four digits, an alternative was necessary. After some serious thinking, a trip to the local auto junkyard located an old Chrysler two-door with power windows. I bought the lift motors from each window; one for use, and the other as backup if the other was burnt out. These were about half the size of the original, and needed only a new mounting bracket. The photo shows the original Klaxon unit on the right, and the new Chrysler one on the left.

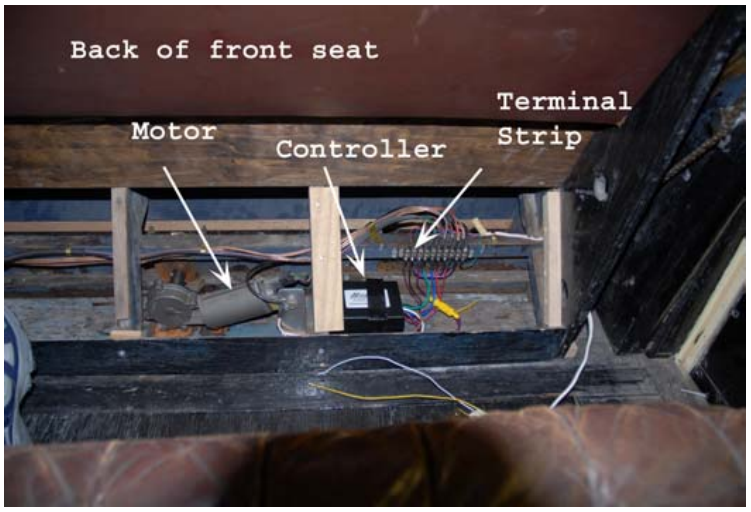


Then a problem arose. The original had three wires emanating from it, one was a common ground and the relays fed the plus side to one of the two remaining wires, depending on the direction of rotation desired. The new motor had just two wires, and the rotation was determined by reversing the ground and positive between the two wires.

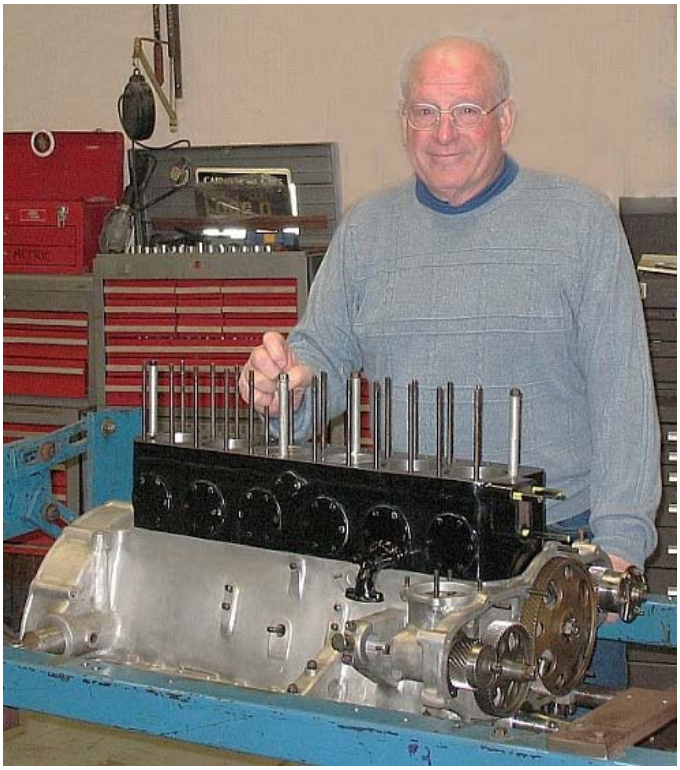
What to do? After drawing several complicated schemes using relays, wiring boards etc to make the 2-wire motor work, I was browsing the web for a battery cutoff switch, and by sheer serendipity found the ideal solution. It was a black box designed to open and close trunk lids and the like on street rods. It carried the full motor current load, and eliminated all the complications.

The unit is made by Hotronics. For specifications and a more complete description, go to http://www.hotronicsproducts.com/, and search for "Motor Control with Limit Switches". The cost was only $89.

I wired the unit in, using a terminal strip to avoid hard wiring in the box to the motor (in case either the motor controller or the motor itself failed, so the unit would be easy to replace). It still took less space than the original motor and does the job admirably. The final installation was as neat as one could wish. The photo shows the bottom of the divider, with the new motor on the left, the controller just to right of center, and the terminal strip high up and to the right.



THE LOOSE SCREW



By Wally Donoghue, Plymouth MI
Technical Director, Goshawk Society

Greetings, fellow members! As your technical consultant I will be writing a regular article on technical subjects relative to small HP cars. Also, I am available anytime to help with any mechanical or technical questions you might have. Just email me at wally@plaidpants.net. In order to help me ascertain what subjects might be of most interest I would appreciate members contacting me telling me about any subjects they would like covered.

For this introductory article I am not going to cover just one subject in depth, as I will for most future articles. Instead I am mentioning just a few "this and that" tidbits or "Random Thoughts" as Thomas Sowell would say. Many of you are already aware of some or all of these things, but it does not hurt to mention them. So, here goes.

Small HP cars include 20, 20/25, 25/30 and Wraith. While the Wraith is classified as a small HP and is included in the Goshawk Society, it bears almost no resemblance technically to the 20, 20/25 and 25/30. It is more of a Phantom III with a six-cylinder engine. Some even call it a "Baby Phantom III". While some of the technical articles I will write will apply to the Wraith, I should point out that the Wraith is also included in the Phantom III Technical Society and many technical articles have been published over the years in their publication *Phantoms* that are applicable to the Wraith. Consequently, I recommend that those members owning a Wraith should also join the P-III TS and order the back issues that have articles on the Wraith. The P-IIITS website is www.p3ts.org. You can click on "How to Join". Once you have joined you can order back issues of their publication *Phantoms.*

All owners should have a copy of the owner's handbook for their car. You can buy reproductions for the 20 and 20/25 from the RROC Stores. For 25/30 and Wraith handbooks are sometimes advertised in *The Flying Lady* and offered on eBay. I also recommend for those that do not have them a copy of the RR Service Instruction leaflets, sold as "Service Manual - Pre-war (TSD 2066R)" in Club Stores and Ron Haynes' book on overhauling the small HP engines also available from Club Stores as "Handbook - 3-1/2 Litre RR". As well as a print catalog, Club Stores is available on line at www.rroc.org.

There has been a huge amount of controversy in recent years which continues to this day about the effect of reduced ZDDP in engine oils, as mandated by the EPA to avoid poisoning the new low-emissions catalyst converters. You can find conflicting articles on this subject all over the Internet, and in many magazine articles, including car collector club magazines.

I am not a chemist or oil expert so I am not qualified to make any recommendations.

However, the prevailing opinion seems to be that there is a potential cam lobe and valve lifter scuffing problem using the new low-ZDDP SM oils in engines with slipper-type non-roller cam followers, as used in the Phantom II, Phantom III and Wraith. However, the 20, 20/25 and 25/30 use roller cam followers, for which the new SM oils are just fine, and no worry is warranted. In fact all modern oils including the SM oils are superior to those available when our cars were new, not just for engine anti-wear additives such as ZDDP, EP additives for hypoid rear axles, etc, and for a host of other additives such as detergents, anti-foam, corrosion inhibitors, viscosity modifiers, anti-oxidants, and so on.

There are several companies advertising special oils that claim to have adequate ZDDP and also companies selling ZDDP and ZDDP-substitute additives. But how are we to know if the claims are true both for the special oils and the additives offered? As we all know advertisers can claim anything with impunity. I think a good future article for our Goshawk publication would be for a club member knowledgeable about this subject do some research and report on it.

If your car is driven enough to go through 3 or more tanks of gas so new gas is being added 3 or more times a year, the addition of preservatives such as STA-BIL fuel stabilizer are not necessary. However, if you anticipate not using the car for an extended period of time, say 6 months or more, then I recommend the addition of STA-BIL in the amount recommended on the container for the amount of gas you will have in your tank. Add it to your gas tank and drive the car about 10 minutes so that the fuel sloshes around and mixes the STA-BIL with the existing fuel. This will also ensure that the treated gas gets into vacuum tank or fuel pump and carburetor and replaces the untreated fuel.

I recently drove a friend's 4-1/4L Derby Bentley (which has brakes very similar to our Small HP's) and realized the brake pedal effort was way too high when stopping the car. He was unaware of this and thought this was normal for a 4-1/4. High pedal effort is a sure sign the brake servo is not doing its job. A properly set up brake system and servo on our cars will result in a relatively light pedal effort to slow or stop the car - not quite like power brakes on a modern car, but similar. Problems with the servo can be caused by oil on the linings, improper adjustments, wear, etc. Over-oiling of the servo shaft is a common culprit.

The front brakes are applied only by the servo. An inoperative or poorly functioning servo not only means no front brakes but also no power assist to the rear brakes. This means a stopping distance several times what it should be, with the consequent risk of serious accident. If everything is in good shape (servo, brake rod adjustment, good tires, clean and dry asphalt or concrete pavement, etc), one can usually "chirp" the tires at low speed with heavy pedal pressure. Because the servo works only if the driveshaft is turning, it is impossible to lock the front wheels, even on gravel or ice, thus ensuring the ability to steer the car. For the same reason, it is impossible to lock the rear wheels. Sir Henry thus anticipated the modern ABS systems.

Another future article I will write concerns sources for pistons for our cars. I am researching this and have already found some piston manufacturers I can recommend and some I cannot. I would appreciate any members contacting me that have had pistons made for their car and give me their experiences with the company and the quality of the pistons.

HUB LUBE AND SERVO OVERHAUL ON A 20/25

By Phil Birkeland, Tacoma WA, Editor, Goshawk Society

My 1935 20/25 Hooper saloon GPG23 "Cerdic" (misspelled as Cedric in Sir Walter Scott's novel Ivanhoe) began exhibiting very high brake pedal pressure and the inability to stop without throwing out an anchor! It was time to get into the braking system for whatever needed overhaul or tune-up. I also wanted to lubricate the wheel bearings and the splined driving dogs on the rear axle. As a fairly experienced amateur Rolls-Royce mechanic, I thought I knew what I was getting into. **I didn't**.

The servo wasn't that much of a surprise, but the front and rear hubs certainly were. If you try your own hand at these tasks, copies of Haynes's "Small HP Braking Systems" (published by RREC but out of print, available in PDF form, ask author), Rolls-Royces' technical bulletins (no service manual was ever issued, but bulletins have been collected by RROC as a Prewar Service Manual and available from Club Stores), and Gil Fuqua's Flying Lady article (TFL, January/February 2000, pgs 5934-5939) on servo overhaul are all necessities. In this article, I will not repeat the instructions in those publications, but will only hit the highlights of what I ran into.

Prewar cars like Cerdic have 4-wheel, servo-assisted brakes, similar in concept to EPW cars, except that they are entirely mechanical. However, the detailed design is vastly more complicated. Dave Pass describes prewar cars as *mechanical jewels*, which means they are not only beautiful mechanically, but are also a bear to work on.

a. Lubing the Hubs

Prewar cars have wire spoke wheels (generally camouflaged with spun aluminum disk covers). They are splined to the hubs, like postwar Jaguars and MGs, except that they use a 'safety hub'. A special tool (furnished with the car) is needed to disengage the lock so that the wheel can be removed. The brake drums come off with the hubs. Removing the hubs takes a special tool set (six separate tools, which you can rent from RROC Headquarters or buy from Charles Tobin at River Carriage Shop), plus a cut-down hook spanner wrench you buy locally or borrow. You MUST have this tool set to get the hubs off so you can inspect brake linings and lube wheel bearings. Sure enough, one of the spanner nuts on all four hubs was buggered just enough so the tool kit's face spanner wrench wouldn't budge them, so I had to make a special spanner to use with my heavy-duty air impact wrench.

Photo 1 shows the car up on jack stands, with the left front wheel removed.

Photo 2 is a close-up of the splined hub.

The arrow points to the end lip of the hub. This is very delicate. **Do NOT tap on this lip** during reassembly when it comes time to ease the brake drum back on over the brake shoes. I did. **Big mistake**. Instead of tapping directly on the hub lip, screw on the tool kit's hub extractor and tap on that.

Here's why. Inside the lip, there is a groove for a snap ring that holds the safety hub sleeve against its spring pressure, and the metal thickness at the bottom of the groove is almost nothing. The lip folded over, and I then had to play "R-R fitter" (the guy in the white shop coat and clean hands who did all the selective assembly work) to pry it back out and true up the groove and the spline slots inside so that everything would fit back together smoothly again like it should. When I got to the right rear hub, I found that some previous mechanic had, in the words of Bill Mote (my buyer's inspection mechanic), *"beaten the s#$%... out of it*", and I had to rework that hub also. The rework turned out well, and unless you look closely, you can't see that anything was ever wrong. Between Haynes, the R-R technical bulletins, and the hub tool kit, the hubs came off, but the job took an incredible amount of time.

The rear axle is of the full-floating type and as a result of Sir Henry's perfectionism; working on this hub requires most of the tools in the hub tool kit.

Photo 3 shows in the foreground all the bits and pieces that come out of <u>one</u> rear hub. The tools needed to remove them are lined up in the background. Scary isn't it? From left to right, the tools shown include the wheel removal tool, air impact wrench, the tool kit face spanner wrench alongside my homemade impact equivalent, a ratchet wrench and socket, the driving dog extractor, axle nut tee-handle socket, the hub extractor, and the cut-down C-spanner wrench.

Getting the snap ring out of (and back into) the groove at the end lip of the hub is a two-man job. Otherwise the backing spring can impale you with the grease cap or embed it in the shop wall on the other side of the garage. You must also pay careful attention to which nuts are left-hand thread and which are right hand. They are marked, but… See Haynes's book. Not only are the threads different between the two sides of the car, but also they are *also different* front to back.

b. Lubricating the Bearings

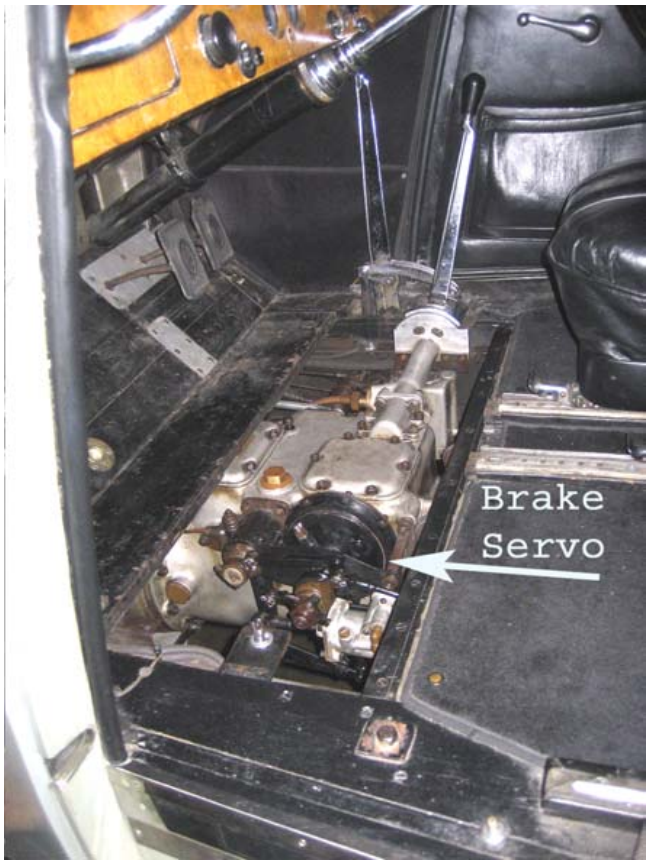
Lubricating the front wheel bearings was straightforward. Lubing the rear wheel bearings was anything but. You can't get at the bearings from the inside diameter because there is a spacer between the inner races of the two bearings. According to the R-R technical bulletins, you can knock the bearings out with a drift. **That didn't work.**

So, I took the rear hubs down to my favorite one-man machine shop to have them pressed out, cleaned, lubed, and pressed back in. They were pressed out by pushing on the inner race of the outer bearing. Not the best practice, as the load had to pass through the balls. There was nothing else but to do it that way. We could press both bearings back in by pushing on the outer races (keeping the load off the balls as one should), but then had to press the outer bearing back by the inner race so as to snug up the inner race spacer. Not a clean procedure, but it worked.

Luckily, so far there is no evidence the balls and races were harmed.

c. Overhauling the Brake Servo

Overhauling the servo went pretty much the way Fuqua's article described the job. **Photo 4** shows the servo with the floorboards removed. The photo is similar to Fuqua's article, which tells how everything works.



Like the early postwar cars, front braking action depends completely on servo action. No servo action means no front brakes, no power assist for the rear brakes, very high pedal pressure, and drastically increased stopping distance. As expected, the old linings were oil-soaked. But the oil soaking was caused by (gulp) Operator Error. Photo 5 points to the spring-cap oiler that is supposed to take only two drops of oil every lube job. There is a little piece of wool yarn underneath the oiler that meters the oil down onto the servo shaft.

On a low mileage car that is seldom driven, I had assumed you should fill up the oiler every time the floorboards were up. **Don't**. Two drops only, twice a year.

Replacement Ferodo linings came from Jack Barclay in London via DHL, in only two business days! Disassembly and reassembly were straight-forward but very fiddly. In spite of all precautions, the circlip on the end of the servo shaft "pinged" off into never-never land when I pried it off. It turned up a month later under the right rear jack stand!

While everything was apart, I removed the rear brake cables to measure their length. They sagged horribly, and I was concerned that they might have stretched. They had not, as the lengths matched perfectly with the table in Haynes.

d. The Results

Finally the day came to drop Cerdic back onto the ground. The test drive was really soul-satisfying. The car could be stopped easily from speed going down a steep freeway off-ramp, and I could chirp the tires in the parking lot going both forwards and backwards. Success was sweet but the effort was considerable!

BUT THE AD SAID……
By Don Elliott, Editor, Pacific NW Region "HoseClamp"

Probably we have all been in this position after buying a used car from an ad. The description of the condition seems pretty good in the ad, but then there is this "wake up call". *"UH OH, What have I done?"* These are made-up ads, but I think you will recognize that they are not far from the truth.

(Thanks to Phil Birkeland for letting me make fun of his parts donor hulk known as "Scrappy", which was once a 1950 Studebaker 1/2 ton Pickup Truck).

The Ad said: "Some assembly required"

But, where's the rest of it?

The Ad said: "Interior needs cosmetics"

It needs a miracle.

The Ad said: "Has some surface rust"

Sure, on every molecule of iron

The Ad said: "It's all here"

Well there's some here, and some over there, and I think that's some of it in the corner too.

Coolants for All Motor Cars, with Special Relevance to Cars with Wet Cylinder Liners Especially Rolls-Royce Phantom III, Silver Cloud II, III, SY and SZ Models

COOLANTS - This is a WARNING to ALL OWNERS

By Stephe Boddice, September 2007 - July 2008

Conclusions within this article are made with the reservation that they are my opinions only, that many statements relate purely to my own experiences, and that any remedial action taken by owners is at their own risk. Certain information has been withheld from the article for legal reasons.

In July 2006 I serviced my Phantom III. The engine on this car had been totally rebuild, by me, in 2003 and, following a complete restoration of the rest of the vehicle, it won First Prize in the PIII class at the RREC National in 2005. The point being that the whole vehicle is in 90+ point condition. The coolant was two years old and therefore ready for replacement. My local auto spares store, part of a national (UK) chain, was out of stock of the standard own-brand antifreeze but was fully stocked with their own-brand 'Advanced Coolant'. The information on the label quoted the usual compliance numbers, offered extended coolant life, better anti-corrosion protection and stated that the product was suitable for older engines. On that basis, following a cooling system flush, I decided to use the new coolant.

After about 4 weeks I noticed damp patches on the floor beneath the engine. Further investigation revealed that coolant was leeching from almost every possible joint: both radiator top hoses, both radiator bottom hoses, the Calorstat joint in the header tank, drain tap joint in the bottom tank plus the weep holes in the block. Tightening joints and hose clips had no effect. My bodily fluids started to threaten sympathetic reaction with the coolant.

The new coolant was drained off, all hoses were replaced with new items and leaking gaskets replaced; obviously, the liner 'O' rings were left in situ pending further investigations. The engine was thoroughly flushed three times and the coolant replaced with a known standard anti-freeze from a different supplier. The result was that all of the coolant leaks stopped immediately. Unfortunately, after driving the car, there was evidence that minute amounts of oil had started to seep from at least three of the weep holes. Bearing in mind that this a concours' standard car, the result was not entirely satisfactory.

Cutting a very long story short, I spent 5 months attempting to get the retailers to provide technical information of any changes made to the formulation of the 'Advanced' coolant compared with their previous offering. This process went through the usual steps of stonewalling, denial, acknowledgement of changes, admission of known problems and culminated with them blaming me for using their product without the manufacturer's recommendation. At this point I escalated the problem and am now in discussions at Board level within the company, which is, in turn, making the manufacturer (one of GB's main producers) provide evidence of the product's suitability or otherwise.

It turns out that the 'Advanced' coolant is manufactured using an Organic Acid Technology (OAT) corrosion inhibitor pack. The previous anti-freeze used an Inorganic Additive Technology (IAT). Evidence supplied to the retailer by the manufacturer admits that the OAT inhibited coolant is known to cause leak problems even in engines that do not use wet liners. The major fault with the inhibitor being that it attacks, amongst other things, silicone compounds. The most commonly used base compound for gasket sealants is silicone.

The immediate problem to the buying public is that the manufacturers and retailers are failing to disclose which inhibitor technology is being incorporated in their coolants/anti-freezes . Anybody replacing their coolant MUST investigate with the manufacturer which system is employed. It appears that OAT, and even HOAT (Hybrid OAT), inhibited coolant can be supplied under the same national compliance standard codes as the earlier IAT technology.

To date, the industry has overlooked the volume/number of old car users who may inadvertently buy their products and the potential risks that this consumption represents. In 2006 there was a survey conducted relating to the 'old car' movement and its contribution to the EU economy. In the UK this was co-ordinated by the Federation of British Historic Vehicle Clubs (FBHVC), which is an umbrella body, funded by all of the recognised auto clubs, to fight poorly drafted EU automotive regulations that may accidentally drive old cars off the road. The findings, for the UK alone, were that this business sector contributed £2 billion (say $3.8 billion) to the UK economy alone. If the coolant manufacturers and retailers carelessly move to OAT inhibitors without considering the ramifications on the old car sector they may find that class actions through the courts will damage their Balance Sheets as much as these products do our old engines.

UPDATE *(ORIGINALLY DRAFTED 13TH SEPTEMBER 2007)*

Well, folks, this has been a long time coming but the situation has eventually been resolved. For those who had the patience to follow this saga from its inception I can now give the definitive answer, which is: -

DO NOT USE OAT INHIBITED COOLANT IN YOUR ENGINE!

I eventually had a meeting with the National Technical Manager of the OAT coolant manufacturer. He was categoric in his statement that this 'technology' is inappropriate for use in any Rolls-Royce or Bentley engine other than the latest Bentley GT and Goodwood Phantom. NO 'IFS' and NO 'BUTS'!

Glossary of inhibitor terminology: -
IAT = Inorganic Additive Technology
OAT = Organic Acid Technology
HOAT = Hybrid Organic Acid Technology

The officially recommended coolant for V8 engines is a 50/50 solution of water and ICI 007/400F antifreeze. The latter is still available from any Official Bentley Main Dealer - see http://www.bentleymotors.com for contact details.

Changeover history: -

Car manufacturers.
The major car manufacturers were looking for improved coolant performance with, amongst other needs, extended product life. Engine designs were changed, including new seals, sealants and gaskets being introduced on a model by model basis. The manufacturers started selectively to introduce OAT coolants from about 1995 and virtually all engines manufactured since 2005 are now compliant with this technology.

Coolant manufacturers.
The primary impetus for the coolant manufacturers is to satisfy the needs of their main customers who are the car manufacturers. The secondary action is to then provide the after-market retailers with the same products so the market can continue to function. 'Old cars', in the eyes of both are deemed to be vehicles up to about 12 years old, this being the national average vehicle life in both the USA and Europe.

No consideration is given to vehicles of a greater age. The decline in the retail sales of IAT coolants is taken as an indication of falling demand despite the fact that the retailers are encouraged to promote H/OAT coolant. General ignorance of the product differences has not been considered, whether this related to the DIY mechanic or non-franchise auto shop operatives. Unless specific demands are made, by owners of really old cars, IAT coolants will soon be removed from the marketplace.

Summary: -
The old car movement in Europe has, fortunately, organised a strong lobbying group as a defence against EU bureaucratic stupidity. The EU legislation drafting machine is constantly putting forward proposals that would inadvertently remove old cars from the road. Representation has stopped this by providing accurate data on the contribution that this group of people make to the various national economies.

When the coolant manufacturer's representative was presented with a copy of the 2005 report he was astounded, not least by the apparent lost opportunity.

Result: -
1) The coolant manufacturer has undertaken to change its own and its retailers' labelling to emphasise the unsuitability of OAT in 'old cars'. At the same time it will clarify or reword its definition of 'old car'.
2) My issue was resolved without recourse the courts, thus depriving the legal profession of a small income.
3) My car has regained its continence.
4) The coolant manufacturer may actually start to market IAT directly at the owners of those cars that need it.

YOU HAVE BEEN WARNED!!!

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"Gil Fuqua's 1935 20/26 GBJ68 Barker 4-Light Limousine"